Evaluation of the three-year pilot (2003, 2004, and 2005) of the NASA Explorer Schools (NES) program yielded models of successful practice. These school models of success have been developed into strategies associated with the orientation process and annual phases of the three-year NASA-school partnership. This document gives NES teams three tools to assist their strategic planning process for each of the phases. A list of the strategies for success helps teams plan actions and discussion topics for team activities. A graphical organizer provides a "big picture" of key events to occur in each of the phases. A five-column table lists activities and tasks, responsible party, due date, expected completion/submission date, and anticipated outcome, comments, and notes which helps team members plan and track their progress so that they can review their progress throughout the program cycle.

NES team roles, school-wide involvement, administrator support, and community involvement are encouraged throughout the strategic planning process. Remember that NASA personnel are involved in supporting NES teams throughout the strategic planning process. Key NASA personnel include: the NES coordinators, aerospace education specialists (AES), Digital Learning Network (DLN) coordinators, and NASA field center education program managers. The NES program goals and anticipated outcomes are provided in Tables 1 and 2 to help schools keep in mind NASA's vision of success for all schools.

Involvement in the NASA Explorer Schools program is a four-phase process summarized here and explained later in greater detail.

Orientation Phase Orientation, focus on understanding roles, responsibilities, and requirements for NES partnership with NASA, professional development symposium for team leads, NASA field center staff school visit, orientation workshop.
Year 1 Startup First year, focus on developing the NASA Explorer School team's knowledge and use of NASA resources, setting up and using videoconferencing equipment, teamwork, family/community involvement, and the content workshops the summer following the first year.
Year 2 Integration Second year, focus on emerging needs and interests of students, expand successful activities, involve the whole faculty in integrating NASA resources into the curriculum, develop new programs and practices, and develop local partnerships.
Year 3 and Beyond—Sustainability Third year, institutionalize best practices, plan for future funding, involve families in more activities, attend the sustainability conference.

Table 1. Primary Goals of the NASA Explorer School Program

1. Provide all students the opportunity to explore, apply, and increase participation in science, technology, engineering, and mathematics (STEM) and geography in a variety of engaging and interactive NASA contexts with multiple uses of advanced technologies.
2. Provide educators with sustained professional development, unique STEM-based teaching and collaborative tools, digital content resources, and compelling NASA contextual-based teaching applications that align with national standards for targeted content areas.
3. Build strong family involvement within the NASA Explorer Schools program.

Table 2. Key Outcomes for the NES Program

1. Increase student interest and participation in science, technology, engineering, mathematics, and geography.
2. Increase student knowledge about careers in science, technology, engineering, mathematics, and geography.
3. Increase student ability to apply science, technology, engineering, mathematics, and geography concepts and skills in meaningful ways.
4. Increase the active participation and professional growth of educators in science technology, engineering, mathematics, and geography.
5. Increase the academic assistance for and technology use by educators in schools with high populations of underserved students.
6. Increase family involvement in children's learning.

Year 1 Startup

Goals: The focus of the first year is the development of the NES team's knowledge and use of NASA resources. The aerospace education specialists are instrumental in suggesting curriculum-specific resources, helping with kickoff and family events, and providing on-site professional development. The NES team gets its videoconferencing equipment up and running, communicates with their NES coordinator regularly, develops working relationships among team members, and works on family and community involvement. Other teachers are invited to attend events, a NASA resource room may be set up, and student needs assessment is ongoing. By the end of the year, the team takes stock of who was involved and plans to send some staff members to content workshops that will further meet the needs of students by using NASA content.

Strategies for success in the startup year:

1. NES team introduces school staff and faculty to the NES program and resources. Team members share the implementation plan with the whole school at the first faculty meeting to develop a sense of purpose and importance in the partnership. The administrative team member links NASA involvement to the school improvement plan.
2. Identify strategies for the NES team to work together and engage in peer-to-peer communication (which includes within team, across team, and with non-NES faculty) to keep a stable team and survive changes if they occur.
3. Continue communication and coordination within the school and with NES coordinators and aerospace education specialists. Coordinate everything through the NES coordinator on the NASA side and the team lead on the school side.
4. Schedule the NES team to meet at least once every two weeks to plan, document progress, and discuss progress on the implementation plan. Include the NES coordinator or AES in meetings for planning, troubleshooting, and suggesting NASA materials most relevant to school plans.
5. Identify and train a family coordinator to organize and facilitate family nights.
6. Plan activities with mentor school, especially discussions between team members and administrators.
7. Schedule the use of NASA resources by families and all students through whole-school events beginning with the kickoff event and occurring regularly throughout the year (assemblies, family nights, clubs).
8. Support teachers in integrating NASA activities in their curricula.
9. NES team members (or their designees) attend conferences and special opportunities addressing teaching STEM-G content with NASA activities.
10. Set up NASA resource library in the school with administrator support and involvement.
11. NES team updates the implementation plan and needs assessment and plans which summer content workshops staff members need to attend.
12. NES team updates its eFolio and reviews it with the NES coordinator and its mentor school.
13. Meet NES “sister” school and begin collaboration.

Year 1 Startup

Activity/Task	Responsible Party	Due Date	Completion/ Submission Date	Outcome
NES team introduces school staff and faculty to the NES program and resources. Share the implementation plan with the whole school. Develop a sense of purpose and importance in the partnership. Administrator links NASA involvement with the school improvement plan.	Administrator, team lead, and NES team			Whole-school awareness and involvement. Comprehensive school understanding of purpose and partnership.
Focus on developing the NES team's ability to work together and engage in peer-to-peer communication (which includes within team, across team, and with non-NES faculty to create a stable team and survive changes if they occur.	NES team, school staff, and administrators			Schoolwide faculty, staff, and administrator communications.
Contact the NES coordinator regarding all NES activities. Communicate all NES activities with the team lead and school administrator.	Team lead and NES coordinator			Regularly scheduled telecons with NES coordinator and AES.
Schedule for NES team to meet at least once every two weeks to plan, document progress, and discuss progress on the implementation plan. Include NES coordinator or AES in meetings as needed for planning, troubleshooting, and suggesting NASA materials most relevant to school plans.	Team lead			Calendar of meetings. Updated, more detailed implementation plan. EFolio (documentation, portfolio, etc.) entries.
Identify and train a family coordinator and provide the person with the family involvement handbook. Plan family activities with AES and NES coordinator support.	Administrator and team			Determine family coordinator, calendar of family activities for year. Update implementation plan.
Set up and use videoconferencing equipment with all NES team members involved.	DLN support; HQ provides technology; school tech specialist			Use videoconferencing for professional development or student events with all NES team involved
Kickoff event with support from AES, NES coordinator, NES team, and NASA.	AES, NES coordinator, team, NASA			Family and community participation and support. Publicity. EFolio (documentation, portfolio, etc.) entries.
Pre-evaluation of student knowledge, STEM-G interest, and career aspirations. Collect pre-assessment of content knowledge in areas designated as “high need” in the needs assessment.	Evaluation team, school faculty and staff			Student career and STEM-G topic interest questionnaire. Student knowledge assessment (case study schools).
EFolio (documentation, e-folio, etc.) development continues.	Team lead or designee			Regular eFolio use (documentation, e-folio, etc.) by NES team, AES, and NES coordinator for ongoing documentation.

Activity/Task	Responsible Party	Due Date	Completion/ Submission Date	Outcome
Select and implement NASA education activities and resources that address (district or school-based) school curriculum goals in STEM-G area.	AES, NES team, NES Coordinator			Students apply STEM-G content and build their interest in STEM-G. Teachers use inquiry based instruction. EFolio (documentation, e-folio, etc.) entries for each activity.
Peer review eFolio with NES coordinator and interested partners.	Mentor school (if applicable), team, NES coordinator, and AES			eFolio (documentation, e-folio, etc.) updated to reflect all startup year activities. Videocon with mentor school.
Involve students in a scientific investigation that will be suitable for presentation at the student symposium.	NES team and school staff			Submission of acceptable student symposium proposal.
Attend student symposium; students present their research and member(s) of the NES team (or designee) present their eFolios	NES team (or designee), students			Present eFolio (documentation, e-folio, etc.) to NASA staff and other NES schools. Student presentations.
Use eFolio to seek partners for sustainability, engage/update community and district administrators, work with Space Grant consortium.	NES team			Additional resources, updated implementation plan.
Set up NASA resource library in the school with administrator support and faculty involvement.	NES team, administrator, school faculty, media specialist			NASA resource library is established and maintained.
Team members (or designees) attend conferences and special opportunities addressing STEM-G topic that addresses content, school pedagogy, or technology goals.	NES team, school faculty, administrator			Professional development activities are documented in workshop feedback forms and NES team portfolio.
Post evaluation of student knowledge, STEM-G interest, and career aspirations.	CET, school administrator, faculty, and staff			Student knowledge assessment (case study schools). Student interest questionnaire. Student career questionnaire.
Update student needs assessment based on available data.	NES team			Update needs assessment and implementation plan.

Year 2 Integration
Goals: During the second full year of the partnership, the focus is on the entire faculty meeting identified student needs in STEM-G with NASA resources. Some staff members will have attended content workshops and can share what they learned and how it will be integrated into the curriculum. The NES team is more familiar with NASA resources and can make specific suggestions for what can be integrated into the curriculum. The AES will offer professional development for more teachers to use NASA resources and inquiry. Local and regional partnerships should be developed to provide additional people and resources for addressing the implementation plan.

Strategies for success in the integration phase:

1. NES team works together to analyze evaluation data on student needs, update the implementation plan based on year one results, document the activities in the portfolio, and schedule a planning meeting with the NES coordinator to reflect on the following questions: Did we meet the goals that were set? How did we work as a team? How did we work with NES support? What are the goals for next year?
2. Involve the whole faculty in selecting resources available that fit instruction (through a resource room, active use of the web site, DLN, contact with the AES and NES coordinator).
3. Make sure NES resource library is maintained and updated.
4. Encourage all faculty members to attend special opportunities and professional development offered at the school.
5. Reexamine the team roles and goals to involve everyone and make specific requests of the AES, including team building, assessment, inquiry, and other professional development activities.
6. Continue and expand mentor school relationship(s) through the Digital Learning Network with AES, NES coordinator, and administrator involvement and support.
7. Work with the school and district administrators to make systematic program changes.
8. Develop opportunities to encourage STEM-G knowledge, interest, and career aspirations (e.g., rocket club, career fair).
9. Create a climate for teachers to mentor each other and provide local professional development.
10. Spotlight successful activities of teachers in the classroom who are successfully using NASA STEM-G materials and activities.
11. Continue family events. Encourage community member leadership in planning and implementation.
12. Seek partners, work with Space Grant consortium and state coalitions, and have sustainability conversations (with administrator support and involvement).

Year 2 Integration

Activity/Task	Responsible Party	Due Date	Completion/ Submission Date	Outcomes/Comments/Notes
Assess and update the implementation plan. Did we meet the goals that were set?	NES team			
Review eFolio entries for each of the NES performance objectives.	NES team			
Discuss teamwork. How did we work as a team? How did we work with NES support, goals for next year? Are we fulfilling our roles? How can we involve our AES in helping us develop as a NASA-style world class team?	NES team, NES coordinator, AES			Updates to implementation plan. Schedule of events for professional development, classroom activities, and family events.
Analyze evaluation data to update implementation plan and inform future decisions.	NES team, NES coordinator			Pre/post questionnaires.
Update NES resource library with new materials from summer workshops. Involve the whole faculty in selecting resources that fit their instructional needs	NES team, school faculty			EFolio entries about use of library.
Share what was learned at content workshops and plan for specific integration of resources into the curriculum with administrator support.	NES team, school faculty			EFolio entries about professional development and new activities.
Encourage all faculty members to attend special opportunities and professional development offered at the school.	NES team, school faculty, AES			Feedback forms, presenter forms, eFolio entries.
Continue and expand mentor school relationship(s) (through the Digital Learning Network and with AES, NES coordinator, and administrator involvement and support).	NES team, NES coordinator, AES			eFolio entries.
Work with the school (and district) administrator to make systematic program changes.	Administrator, NES team			eFolio entries.
Expand, promote, and review student opportunities for pursuing STEM-G interests.	NES team			Growth in school science clubs and student science projects.
Create a climate for teachers to mentor each other and provide local professional development.	NES team, administrator			eFolio entries.

Activity/Task	Responsible Party	Due Date	Completion/ Submission Date	Outcomes/Comments/Notes
Spotlight successful activities of teachers in the classroom who are successfully using NASA STEM-G materials and activities.	NES team, NES coordinator			eFolio entries; feature in district school newsletters.
Continue family events; encourage community member leadership in planning and implementation.	Family coordinator			eFolio entries.
Faculty attends conferences and special opportunities.	School faculty			eFolio entries
Develop additional opportunities for students to encourage STEM-G knowledge, interest, and career aspirations (e.g. rocket club, career fair).	NES team, administrator			Update implementation plan. eFolio entries.
Conduct activities, then prepare and submit applications for presentations at conferences and for publication.	School faculty			Update implementation plan. eFolio entries.
Seek partners, work with Space Grant consortium and state coalitions, and have sustainability conversations (with administrator support and involvement).	Administrator			Additional resources, update implementation plan, write grants.
Attend sustainability conference.	Administrator, NES team lead			Apply to go.

Year 3 and Beyond—Sustainability
Goals: During the third year of the partnership, the focus is on institutionalizing the best practices of the school and other NES schools and planning for sustainability, including establishing external partnerships for funding and other resources, continuing use of NASA resources and technology (particularly DLN support), planning professional development, and achieving whole-school implementation. This phase begins in the summer with a sustainability conference, during which the NES team networks and learns about resources to sustain its NASA programs after year three.

Strategies for success in the sustainability phase:

1. Look at the entire school program and integrate NASA resources to support student needs.
2. Use the most current data on student outcomes to make decisions about sustaining programs.
3. Institutionalize program sustainability through the use of the eFolio to document activities for publicity and demonstrating progress.
4. Pursue opportunities to publish about the NASA partnership's effects on teachers and students' STEM-G literacy activities.
5. Inventory STEM-G career interest activities for students. Identify needs.
6. Increase integration of technology tools and resources by faculty.
7. Continue to associate with the NES program through NASA web sites, DLN, online resources, CORE/Educator Resource Centers, partnering with other NES schools, and presenting at conferences.
8. Continue surveying student STEM-G career interests and provide needed resources.

Year 3 and Beyond—Sustainability

Activity/Task	Responsible Party	Due Date	Completion/ Submission Date	Outcome/Comments/Notes
NES team attends sustainability conference.	NES team			Sustainability plan.
Update implementation plan, add detail, make program school-wide, and continue administrator involvement.	NES team			Updated implementation plan. Administrator leadership.
Implement institutional changes in curriculum and programs, such as creating new courses, involving feeder schools, and offering more STEM-G opportunities.	NES team, NES faculty, NES Coordinator, AES, DLN Coordinator			EFolio entries about changes. Administrator leadership.
Evaluate teacher and student growth, pre/post at beginning and end of year.	CET, NES team			Send to evaluation team for scoring and summary. Use data for planning and celebrating growth.
Continue community-based programs involving community members and families in planning and leadership of events.	NES team, AES, NES Coordinator, DLN Coordinator			EFolio entries. Publicity.
Continue mentor school activities through DLN. Increase the number of collaborative or parallel investigations. Involve administrators in both schools.	NES team, NES faculty, DLN Coordinator			EFolio entries about activities. Publicity
Use NASA resources—continue use of DLN, SON, inquiry-based activities, grantee-created resources.	NES team, NES faculty			EFolio entries about activities by all teachers involved.
Apply for additional grants, using NASA resources and people to locate and apply with administrator support.	NES team			Grant applications.
Share expertise at district, state, and regional conferences.	NES team			Co-presentations with AES, NES coordinator. Publications by team.